

YERSHOV, B.A., inzh.; YEMEL'YANOV, V.S., inzh.

Determining the speed of a pneumatic-post carrier at track turns. Izv.vys.ucheb.zav.; mashinostr. no.7:137-140 '63.  
(MIRA 16:11)

1. Kuybyshevskiy industrial'nyy institut.

TEMNIKOVA, T.I.; YERSHOV, B.A.

Reactions of metallic derivatives of  $\beta$ -dicarbonyl compounds  
with  $\alpha$ -haloxides. Part 2: Reaction of Na-dimedon with  
 $\alpha$ -bromocoxides of isomeric butenes and with epibromohydrin.  
Zhur. ob. khim. 33 no. 5:1405-1408 My '63. (MIRA 16:6)

1. Leningradskiy gosudarstvennyy universitet,  
(Cyclohexanedione) (Butene)  
(Epibromohydrin)

TEMNIKOVA, T.I.; YERSHOV, B.A.

Chemical transformations of  $\alpha$ -halo ketones. Part 6: Reactions  
of  $\alpha$ -bromopropiophenone and  $\alpha$ -bromobutyrophenone with sodium  
derivatives of acetoacetic ester and dimeson. Zhur.ob.khim. 33  
no.6:1732-1738 Je '63. (MIRA 16:7)

1. Leningradskiy gosudarstvenny universitet.  
(Propiophenone) (Butyrophenone) (Acetoacetic acid)  
(Cyclohexanedione)

TEMNIKOVA, T.I.; YERSHOV, B.A.

Cyclic acetals of hydroxycarbonyl compounds. Part 12: Reactions  
of methyl lactolides of methylbenzoylcarbinol and ethylbenzoylcarbinol  
with sodium acetoacetic ester. Zhur. ob. khim. 33 no.6:1738-1743  
Je '63. (MIRA 16:7)

1. Leningradskiy gosudarstvennyy universitet.  
(Carbonyl compounds) (Acetoacetic acid)

TEMNIKOVA, T.I.; YERSHOV, B.A.; ARDITZ, A.I.; RAZUMOVSKAYA, R.N.

Interaction of  $\alpha$ -oxybromides with Na derivatives of  $\beta$ -di-carbonyl compounds. Zhur. ob. khim. 33 no.10:3436-3437 O '63.  
(MIRA 16:11)

1. Leningradskiy gosudarstvennyy universitet.

TEMNIKOVA, T.I.; YARSHOV, B.A.; ARDINI, A.I.

Interaction of metallic derivatives of compounds containing a labile hydrogen atom with  $\alpha$ -oxyhalides. Part 5: Regarding the structure of the products of interaction of Na-acetoacetic ester with 1-bromo-3-methyl-1,2,3-epoxybutane, 1-bromo-2,3-epoxybutane, 3-bromo-1,2-epoxybutane, and epibromohydrin.  
Zhur. ob. khim. 35 no.5:788-795 My '65. (MIRA 18:6)

1. Leningradskiy gosudarstvennyy universitet.

TEMNIKOVA, T.I.; YERSHOV, B.A.

Interaction of metallic derivatives of compounds containing  
a labile hydrogen atom with  $\alpha$ -oxyhalides. Part 6: Reaction  
of Na-acetoacetic ester with chloroprene oxide in ethanol.  
Zhur. ob. khim. 35 no.5:796-798 My '65. (MIRA 18:6)

1. Leningradskiy gosudarstvennyy universitet.

YERSHOV, B. M.

Mathematical Reviews  
Vol. 14 No. 8  
Sept. 1963  
Analysis

8-10-54  
LL

Efimov, B. A. On stability in the large of a certain system of automatic regulation. Akad. Nauk SSSR, Prikl. Mat. Meh. 17, 61-72 (1953). (Russian)

The action of a certain automatic regulator is governed by a system

$$\begin{aligned}\dot{x} &= -Nax - by + \varphi(x, y), \\ \dot{y} &= f(cx - dy) = cx - dy + \psi(x, y),\end{aligned}$$

where  $a, b, c, d$  are positive constants and  $\varphi, \psi$  are the nonlinearities,  $N \neq 1, 0, -1$  according as the system has positive self-correction, none or negative self-correction. It is very unclearly indicated that there is no limit-cycle; since the critical point at the origin appears to be the only one present and is stable, both  $x$  and  $y \rightarrow 0$  as  $t \rightarrow +\infty$ . [Reference: Erugin, same journal 14, 459-512 (1950); these Rev. 12, 412.]

S. Lefschetz (Princeton, N. J.)

(2)  
math  
3

2

YERSHOV, B. A.

USSR/Mathematics - Stability of motion

FD-644

Card 1/1 : Pub. 85 - 11/12

Author : Yershov, B. A. (Leningrad)

Title : A theorem on the stability of motion in the whole

Periodical : Prikl. mat. i mekh., 18, 381-383, May/Jun 1954

Abstract : Considers the system of equations  $dx/dt = F(x,y)$ ,  $dy/dt = f(s)$ , where  $s = ax-by$ . Notes that this system was also studied by N. N. Krasovskiy, "Stability of motion in the whole under constantly acting disturbances," PMM, 17, No. 1, 1954. In the present work the author shows that the fact of asymptotic stability of the solution of system for any initial deviation can be established without certain restricting assumptions of N. N. Krasovskiy. Refers to related works of N. P. Yerugin in PMM, 1950-1952

Institution : --

Submitted : March 23, 1954

SOV/124-58-8-8388

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 6 (USSR)

AUTHORS: Yershov, B.A., Sobolev, Yu.S.

TITLE: Stability Criteria for Nonlinear Dynamic Systems Subjected to Large Initial Perturbations (Primery ustoychivosti v bol'shom nekotorykh dinamicheskikh sistem)

PERIODICAL: Uch. zap. LGU, 1957, Nr 217, pp 17-21

ABSTRACT: Some criteria are adduced for the stability of nonlinear systems subjected to large initial perturbations. The evolution of these stability criteria is based on certain considerations put forth by S.A. Stebakov (Dokl. AN SSSR, 1954, Vol 95, Nr 3). We cite one of the criteria as an example. Conditions sufficient for the asymptotic stability of the system

$$\dot{x}_i = f_i(x_i, x_{i-1}) A_i x_i + B_i x_{i-1} + \phi_i(x_i, x_{i-1}) \quad (i=1, \dots, n)$$

wherein

$$A_i = (\partial f_i / \partial x_i)_{x_i=0}, \quad B_i = (\partial f_i / \partial x_{i-1})_{x_i=0}$$

Card 1/2

$$x_{i-1} = 0$$

$$x_{i-1} = 0$$

SOV/124-58-8-8388

Stability Criteria for Nonlinear Dynamic Systems (cont.)

are given by the inequalities

$$\left| \frac{\partial f_i}{\partial x_i} / \frac{\partial f_i}{\partial x_{i-1}} \right| > \left| \frac{A_i}{B_i} \right|$$

$$A_i < 0, \quad \prod_{i=i}^n \left| \frac{A_i}{B_i} \right| > 1$$

Reviewer's comment: The proofs adduced in the paper are incomplete. For some of the systems examined (example 3) the literature contains more general stability criteria. Replacing the standard terminology associated with the second Lyapunov method by such terms as "  $\Omega$  -shell", "inward conductivity", etc., is deemed unjustified, inasmuch as the problems considered by the author are well within the ambit of the ordinary Lyapunov stability problems.

N.N. Krasovskiy

Card 2/2

Yershov, B.A.

SOV/124-58-5-4969

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5, p 4 (USSR)

AUTHOR: Yershov, B.A.

TITLE: Estimation Method for Use in Investigating the Stability of Non-linearly Controlled Systems (Metod otsenok pri issledovanii ustoychivosti nelineynykh reguliruyemykh sistem)

PERIODICAL: Uch. zap. LGU, 1957, Nr 217, pp 22-27

ABSTRACT: An examination is made of differential equations of the form

$$dX/dt = AX + F(X), \quad X(0) = X_0$$

$$F(X) = \begin{bmatrix} h_1 f(x_1, \dots, x_n) \\ \dots \\ h_n f(x_1, \dots, x_n) \end{bmatrix}$$

describing the perturbed motion of a controlled system (wherein  $X$  is a matrix column,  $A$  a constant square matrix,  $F(X)$  a matrix column, and  $h_i$  are constants). The function  $f(x_1, \dots, x_n)$  satisfies the conditions of the theorem of the existence and uniqueness of the solutions of the given equations,

Card 1/2

SOV/124-58-5-4969

Estimation Method for Use (cont.)

and, in addition,

$$| f(x_1, \dots, x_n) | \leq a \sum_{i=1}^n | x_i |$$

$$f(0) = 0, \quad a > 0$$

Taking as his basis an integral equation equivalent to equation (1), the author develops a method for obtaining an evaluation of the matrix  $\| X \|$ . From the evaluation it follows that asymptotic stability occurs whenever

$a\gamma < \lambda$ , wherein  $\lambda$  represents the eigenvalues of A, while  $\gamma$  is determined from the canonical-transformation coefficients of A.I. Lur'ye.

A.M. Letov

1. Dynamics--Theory
2. Mathematics--Applications

Card 2/2

YER SHOU, B. A.

PHASE I BOOK EXPLOITATION SOV/4630

Leningrad. Universitet

Mekhanika (Mechanics) [Leningrad] 1960. 254 p. (Series: Its: Uchenyye zapiski, no. 280. Seriya matematicheskikh nauk, vyp. 35) Errata slip inserted. 1,725 copies printed.

Sponsoring Agency: Leningradskiy ordena Lenina gosudarstvennyy universitet imeni A. A. Zhdanova.

Resp. Ed.: N. N. Polyakhov, Professor; Ed.: T. I. Kulagina; Tech. Ed.: Ye. G. Zhukova.

PURPOSE: This collection of articles is intended for scientists, engineers at NII's (scientific research institutes) and design offices and also for students of advanced courses in related fields.

COVERAGE: The collection consists of original investigations in the field of modern mechanics including general mechanics, theory of elasticity, and hydroaerodynamics. No personalities are mentioned. References accompany all articles except one.

Card 1/5

Mechanics

SOV/4630

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Card 2/

YERSHOV, B.A.; SOKOLOV, M.L.

Standardization of units and parts in the work of a design office.  
Standartizatsiya 25 no.1:36-39 Ja '61. (MIRA 14:3)  
(Simplification in industry)

YERSHOV, B.A.

Standard structures are the first steps in the standardization of  
mechanism units. Mashinostroitel' no.2:38 F. '62. (MIRA 15:2)  
(Machinery-Standards)

CHUKMASOV, S.F., doktor tekhn.nauk, prof.; YERSHOV, E.I., inzh.;  
IGNATOV, A.V., inzh.; SEMENTSOV, V.Ya.

Strength analysis of capron and ceramic-metal bushings at normal  
and lower temperature. Vest.mash. 42 no.1:49-51 Ja '62. (MIRA 15:1)  
(Nylon—Testing)  
(Ceramic metals—Testing)

YERSHOV, B.A.

Normalization of standard units of chemical machinery.  
Standartizatsiya 27 no.2:8-11 F '63. (MIRA 16:4)

(Chemical industries—Equipment and supplies)

YERSHOV, B.A., inzh.

Design of hydraulic cylinders with a minimal external diameter.  
Vest.mashinostr. 44 no.1:20 Ja '64. (MIRA 17:4)

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ASSOCIATION: none

Card 1/4

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## PHASE I BOOK EXPLOITATION

Kremlevskiy, P.P., Candidate of Technical Sciences, ed.  
**Toploenergeticheskaya i khimicheskaya priroby i regulatory**  
 (Instruments and Regulators in Heat-Power and Chemical Engineering)  
 Moscow, Mashgiz, 1961. 207 p. Errata slip inserted. 8,500 copies  
 printed.

Ed. of Publishing House: G.A. Dadiurov; Tech. Ed.: L.V. Shechetinina;  
 Managing Ed. for Literature on the Design and Operation of Machines,  
 Leningrad Department, Mashgiz; F.I. Felsov, Engineer.

PURPOSE: This book is intended for engineers and technicians who construct,

design, and operate industrial instruments and regulators.

COVERAGE: The book deals with new investigations in the field of automatic  
 checking and regulation of heat-power and chemical industrial processes.

The following problems are discussed: improvement of two-position

control operation; effect of mass action and damping on proportional  
 control; new proportional plus integral; and programming electronic  
 regulation systems; complete automation of open-hearth furnaces;  
 automation of boilers with variable load capacity; measurement of  
 pulsating flow; measurement of dust flow; ultrasonic and magnetic  
 induction flowmeters; pneumatic compensating differential manome-  
 ter; aggressive-fluid flowmeters; new magnetic and optical acous-  
 tical gas analyzers; concentration meters; and chlorine and caustic  
 regulators. The book is the fifth in a series containing reports on the  
 investigations carried out by the Section on Heat-Engineering Control  
 Instrumentation and Automation of the Leningradskoye otdeleniye  
 Nauchno-tehnicheskogo obshchestva priroby i regulatory Akademii  
 Nauk Leningrad Branch of the Scientific and Technical Society of the Institute  
 of Metallurgical Industry.) All the articles presented in this book were  
 discussed either at sessions of the above section or at the conference on

measurements of mechanical quantities called by the section, the  
 VNIIM (Vsesoyuzny nauchno-issledovatel'nyy institut metrologii im.  
 D.I. Mendeleeva) All-Union Scientific Research Institute of  
 Metrology (Inst. D.I. Mendeleeva), and the Leningradskoye  
 servosyntez. im. A.M. Gor'kogo (Leningrad Home for Scientists Imeni  
 A.M. Gor'kogo). No personalities are mentioned. There are 35 ref-  
 erences; 41 Soviet, 20 English, and 4 German. References accompany  
 most chapters.

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induction flowmeters; pneumatic compensating differential manome-  
ters; aggressive-fluid flowmeters; new magnetic and optical-acous-  
tical gas analyzers; concentration meters; and chlorine and coagulant  
regulators. The book is the fifth in a series containing reports on the  
investigations carried out by the Section on Heat-Engineering Control  
Instrumentation and Automation of the Leningradskoye otdeleniye

YERSHOV, B.B.; RYABOV, V.P.; SHEYNIN, D.M.

Industrial volume-manometric gas analyzers of periodic action.  
Zav. lab. 30 no. 8±1023-1024 '64. (MIR 18:3)

1. Spetsial'noye konstruktorskoye byuro analiticheskogo priboro-  
stroyeniya AN SSSR.

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TITLE: Structure and fate of polyethylene after irradiation and its relation to the formation of crosslinked polyethylene

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APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910003-0"

MARKOVA, Z.A.; YERSHOV, B.G.; BAKH, N.A.

Study of structural changes of polyethylene subjected to  
radiation and heat treatment. Vysokom. soed. 6 no.1:131-  
134 Ja'64. (MIRA 17:5)

1. Institut elektrokhimii AN SSSR.

YERSHOV, D.G.; PIKAYEV, A.K.

Electron paramagnetic resonance spectra of free radicals arising  
in the photolysis of frozen aqueous alkaline solutions of  
hydrogen peroxide. Izv. AN SSSR, Ser. khim., no. 54922-923, May '64.  
(MIRA 17:6)

1. Institut fizicheskoy khimii AN SSSR.

YERSHOV, B.G.; PIKAYEV, A.K.; RYABCHIKOVA, G.G.; SPITSYN, Vikt.I., akademik

Mechanism underlying the radiolysis of dilute aqueous nitrate  
solutions. Dokl. AN SSSR 159 no.6:1357-1360 D '64 (NIRA 18:1)

1. Institut fizicheskoy khimii AN SSSR.

YERSHOV, B.G.; PIKAYEV, A.K.; GLAZUNOV, P.Ya.; SPITSYN, Vikt. I.,  
akademik

Electron paramagnetic resonance method used for proving  
the participation of the trapped electron in the radiochemical  
reactions taking place in frozen aqueous solutions. Dokl. AN  
SSSR 154 no.4:899-902 F '64. (MIRA 17:3)

1. Institut fizicheskoy khimii AN SSSR.

YERSHOV, B.G.; PIKAYEV, A.K.; GLAZUNOV, P.Ya.; SPITSYN, Vikt.I.

Electron paramagnetic resonance spectra of irradiated frozen aqueous solutions. Report No.3: Aqueous solutions of sodium nitrate. Izv. AN SSSR. Ser. khim. no.11:1919-1927 '65.  
(MIRA 18:11)

1. Institut fizicheskoy khimii AN SSSR.

ACC NR: AT7001782

SOURCE CODE: UR/3119/66/000/004/0039/0047

AUTHOR: Yershov, B. G.; Pikayev, A. K.

ORG: Institute of Physical Chemistry, AN SSSR (Institut fizicheskoy khimii AN SSSR)

TITLE: Detection of a captured electron in irradiated frozen aqueous solutions of alkalis by the electron paramagnetic resonance method

SOURCE: AN LatSSR. Institut fiziki. Radiatsionnaya fizika, no. 4, 1966. Ionnyye kristally (Ionic crystals), 39-47

TOPIC TAGS: electron capture, electron paramagnetic resonance, aqueous solution, hydration, epr spectrum, line splitting

ABSTRACT: This is a continuation of earlier work (Izv. AN SSSR ser. khim. v. 10, 1955, 1964 and preceding papers) where the hydrated electron produced by the effect of ionizing radiation on water was detected with the aid of EPR. The present study was made on frozen solutions, for which the probability of the hydrated electron is the largest. The EPR solutions of NaNO<sub>3</sub> irradiated at 77K, and of concentrated solutions of KOH, irradiated at 77K, are analyzed and the radicals responsible for the different fine structure lines are identified. The measured line widths and the corresponding g-factors, as well as data obtained by others, lead to the conclusion that in the radiolysis of water and aqueous solutions, the primary radiolysis product, which has reducing properties, is the hydrated electron, which becomes stabilized in alkaline solutions at low temperatures. The character of its EPR spectrum indicates

Card 1/2

ACC NR: AT7001782

that the nearest neighboring of the electron are water molecules and not cations. The nature of the observed paramagnetic center is discussed in light of these results and published data. Orig. art. has: 6 figures, 7 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 006/ OTH REF: 019

Card 2/2

ACC NR: AP7004584

SOURCE CODE: UR/0020/66/169/005/1119/1122

AUTHOR: Yershov, B. G.; Pikayev, A. K.

ORG: Institute of Physical Chemistry, AN SSSR (Institut fizicheskoy khimii AN SSSR)

TITLE: Yields of reduction products of the <sup>19</sup>radiolysis of water in neutral and alkaline media

SOURCE: AN SSSR. Doklady, v. 169, no. 5, 1966, 1119-1122

TOPIC TAGS: chemical reduction, hydrogen peroxide

ABSTRACT: Radiolytic conversions in a nitrate system at high dose rates (1 megaelectron volt electron radiation, doses of  $(3-6) \cdot 10^{17}$  electron volts per milliliter) were investigated in a study of the yields of reduction products of the radiolysis of water at various pH. At pH 13, in contrast to neutral and weakly alkaline media,  $G(\text{NO}_3^-)$  was found to be independent of the dose rate. The yield of nitrate at high dose rates could serve as a measure of the yield of hydrated electrons. Some obscurity still remains concerning the yield of hydrogen peroxide: in neutral solutions,  $G(\text{H}_2\text{O}_2)$  increases at high dose rates, but still comprises only 1.35; in strongly alkaline medium,  $G(\text{H}_2\text{O}_2)$  is practically the same at high dose rates as at low dose rates (equal to  $\sim 0.4$  at pH 13.2). The observed increase in the yield of hydrated electrons in alkaline medium may be due to several factors: 1) interaction of hydrogen atoms (possible primary products of radiolysis) with  $\text{OH}^-$  ions in

Card 1/2

UDC: 484.15

ACC NR: AP7004584

solution, yielding hydrated electrons; 2) additional formation of  $e^-$  in the reaction of hydroxyl ions with excited water molecules or radical pairs in the cell; 3) possible generation of hydrated electrons and hydroxyl radicals on account of excitation and subsequent decomposition of hydroxyl ions; 4) partial suppression of the reaction of hydrated electrons and hydroxyl radicals as a result of the OH radical acceptor function of  $OH^-$  ions, leading to an increase in  $G_e^{aq}$  and  $G_{OH}^-$ . This paper was presented by Academician V. I. Spitsyn on 23 November 1965. Orig. art. has: 1 figure, 18 formulas, and 1 table. [JPRS: 38,970]

SUB CODE: 07 / SUBM DATE: 03Nov65 / ORIG REF: 006 / OTH REF: 009

Card 2/2

L 24303-66 EWT(1)/EWT(m)/EPF(n)-2 IJP(c) WW/GG/AT

ACC NR: AP6009806

SOURCE CODE: UR/0062/66/000/002/0386/0386

AUTHOR: Yershov, B. G.; Pikayev, A. K.

59

ORG: Institute of Physical Chemistry, Academy of Sciences, SSSR  
(Institut fizicheskoy khimii Akademii nauk SSSR)

R

TITLE: Detection by the EPR method of captured electrons in irradiated  
vitreous neutral aqueous solutions of electrolytes

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1966, 386

TOPIC TAGS: electron paramagnetic resonance, electron, electron  
capture, electron detection, electrolyte

21

ABSTRACT: The EPR method was utilized in detecting captured electrons  
in irradiated frozen neutral H<sub>2</sub>O and D<sub>2</sub>O solutions of LiCl and NaClO<sub>4</sub>.  
Gamma-irradiation of 10-15M LiCl and of 10M NaClO<sub>4</sub> solutions at -196°  
caused blue and violet coloration, respectively. Photo-annealing in  
visible light completely decolorized the NaClO<sub>4</sub> solution and the LiCl  
solution turned light green. The decoloration was accompanied by the  
disappearance of the singlet where the g-factor is about 2.00. The  
electron escape was significantly less than from vitreous alkali  
solutions. The electron concentration rapidly becomes stationary with

Card 1/2

UDC: 543.422+538.113

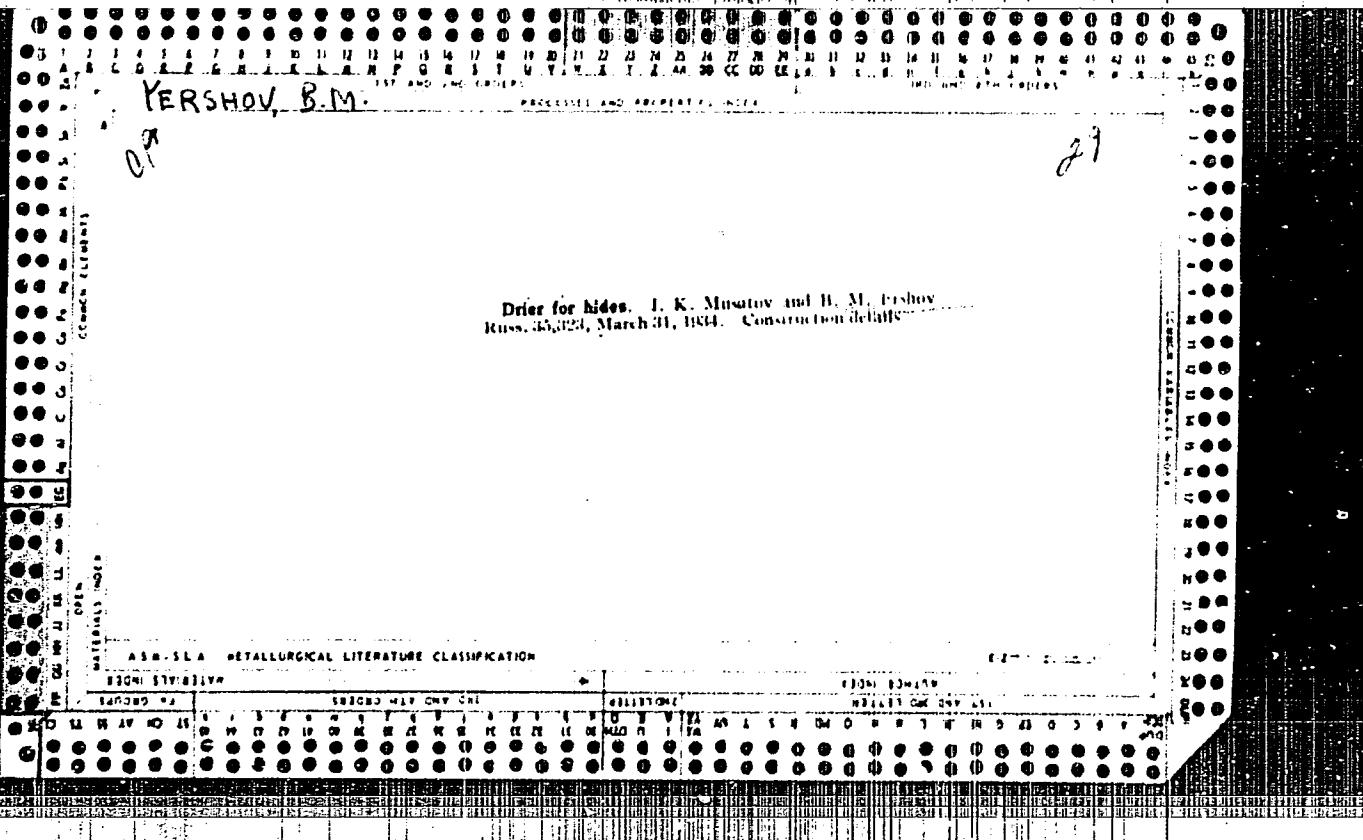
2

ACC NR: AP6009806

increased dosage. Electrons are stabilized only in vitreous solutions.  
Orig. art. has: none.

SUB CODE: 07, 20/ SUBM DATE: 01Dec65/ ORIG REF: 002

Card 2/2 FV



YERSHOV, Boris Mikhaylovich; KLEVTSOV, D.S.; PLEMENNIKOV, M.N., redaktor;  
SMOL'YANOVA, M.V., tekhnicheskiy redaktor;

[Leather industry equipment] Obrudovanie kozhevennogo proizvodstva.  
Moskva, Gos. nauchno-tekhn. izd-vo Ministerstva promyshlennyykh  
tovarov shirokogo potreblenia SSSR, 1954. 430 p. (MIRA 7:10)  
(Leather industry--Equipment and supplies)

VERSNOV, Boris Mikhaylovich.

Leather industry equipment. Moskva, Gos. nauchno-tehn. izd-vo Ministerstva promyshl. tovarov shirokogo potrebleniia SSSR, 1974. 430 p. (55-20646)

TS967.E7

YERSHOV, B.G.; PIKAYEV, A.K.; GLAZUNOV, P.Ya.; SPITSYN, Vlkt.I., akademik

Electron paramagnetic resonance spectrum of a hydrated electron  
in irradiated frozen alkaline solutions. Dokl. AN SSSR 149  
no.2:363-366 Mr '63.  
(MIRA 16:3)

1. Institut fizicheskoy khimii AN SSSR.  
(Alkalies--Spectra) (Radiation) (Electrons)

YERSHOV, B.G.; PIKAYEV, A.K.; GLAZUNOV, P.Ya.; SPITSYN, Vikt.I.

Electron paramagnetic resonance spectra of irradiated frozen aqueous solutions. Izv. AN SSSR. Ser. khim. no.10:1755-1761 O '64.

(MIRA 17:12)

1. Institut fizicheskoy khimii AN SSSR.

YERSHOV

UDC 546.85'12(0.85) 1965, P.Ya.; SPITSIN, V.I.

The effect of gamma radiation on fluorescence spectra of irradiated frozen aqueous solutions. Report No.2: Aqueous solutions of sodium nitrite. Izv. AN SSSR. Ser. Khim. no.10:1758-1763 '65.

I. Institut fizicheskoy khimii AN SSSR.

(MIRA 18:10)

ACC NR: AP7005580

SOURCE CODE: UR/0020/67/172/002/0309/0312

AUTHOR: Yershov, B.V.; Pimenov, Yu.P.; Fedorov, V.B.; Prokhorov, A.M.  
(Academician)

ORG: Physics Institute im. P.N. Lebedev, Academy of Sciences, SSSR  
(Fizicheskiy institut Akademii nauk SSSR)

TITLE: Two-photon absorption of  $\text{CaF}_2$ :  $\text{Ho}^{+++}$  crystals

SOURCE: AN SSSR. Doklady, v. 172, no. 2, 1967, 309-312

TOPIC TAGS: calcium fluoride, holmium, two photon absorption,  
luminescence, crystal impurity, PHOTON, LASER RADIATION

ABSTRACT:

An investigation was made of artificially grown  $\text{CaF}_2$  crystals containing 0.3 wt%  $\text{Ho}^{+++}$ . The samples were cylindrical, 1 cm in diameter and 4–5 cm long. They were irradiated, either separately or simultaneously, by a ruby laser and an Nd-glass laser with pulses of 7.8 and 11.3 joules, respectively. Pulse duration was in the millisecond range. The two-photon processes were detected by the green luminescence ( $\lambda = 551.2 \text{ \AA}$ ) arising after preliminary nonradiative transition from a two-photon-excited absorption level to the initial level  $^5\text{S}_2$  of this line. The observed two-photon transitions were of three kinds, corresponding respectively to the absorp-

UDC: 535.37

Card 1/2

ACC NR: AP7005580

tion of 2 ruby photons, 2 Nd-glass photons, and 1 ruby photon and 1 Nd-glass photon. As in experiments on  $\text{CaF}_2 : \text{Eu}^{++}$ , in which two-photon absorption was first reported [W. Kaiser, C. G. B. Garrett, Phys. Rev. Letters, 7, 1961, p. 229], the nonlinearity of intensity relationships was one of the validity criteria for the assumption of a two-photon mechanism: with only one laser luminescence grew with the square of the irradiation intensity; with two lasers, its magnitude was greater than the sum of the separate effects of each laser. Oscillograms showed that the Nd-glass luminescence lagged approximately  $10^{-3}$  sec behind the ruby luminescence, which indicates a relative slowness of the transition from the  $^5\text{F}_4$  absorption level to the  $^5\text{S}_2$  initial level of the green line. The relative timing of the laser pulses could be adjusted by selection of a suitable circuitry. Stimulated luminescence of  $\text{CaF}_2 : \text{Ho}^{+++}$  at 77°K was previously demonstrated by Yu. K. Voron'ko, A. A. Kaminskiy, V. V. Osiko, and A. M. Prokhorov (Pis'ma ZhETF, v. 1, no. 1, 1965, p. 5). Orig. art. has: 2 figures. [JM]

SUB CODE: 20 / SUBM DATE: 12Nov66 / ORIG REF: 002 / OTH REF: 003 /  
ATD PRESS: 5116

Card 2/2

YERSHOV, B.M., inzh.

Standardizing and unifying construction of apartment houses and  
public buildings. Transp. stroi. 8 no.10:8-9 0 '58.  
(Standards, Engineering) (MIRA 11:11)

RADTSIG, B.B.; YERSHOV, B.M.

Answers to readers' questions. Transp. stroi. 10 no.9:61 S '60.  
(MIRA 13:9)

1. Nachal'nik izyskatel'skoy partii Dneprogiprotransa (for Radtsig).
2. Lengiprotrans (for Yershov).  
(Construction industry)

M.  
YERSHOV, B., inzh.

Housing for railroad workers. Zhil. stroi. no.1:23 '62.  
(MIRA 16:1)  
(Housing)

YERSHOV, B.M.

Cooperation is the basic requirement for the construction of villages  
on railroad lines. Transp. stroi. 12 no.11:38-39 N "62. (MIRA 15:12)

1. Rukovoditel' gruppy Lengiprotransa.  
(City planning)

YERSHOV, B., inzh.

Building development of railroad villages. Zhil. stroi. no.1:7-8 '63.  
(City planning) (MIRA 16:2)

YERSHOV, B.M.

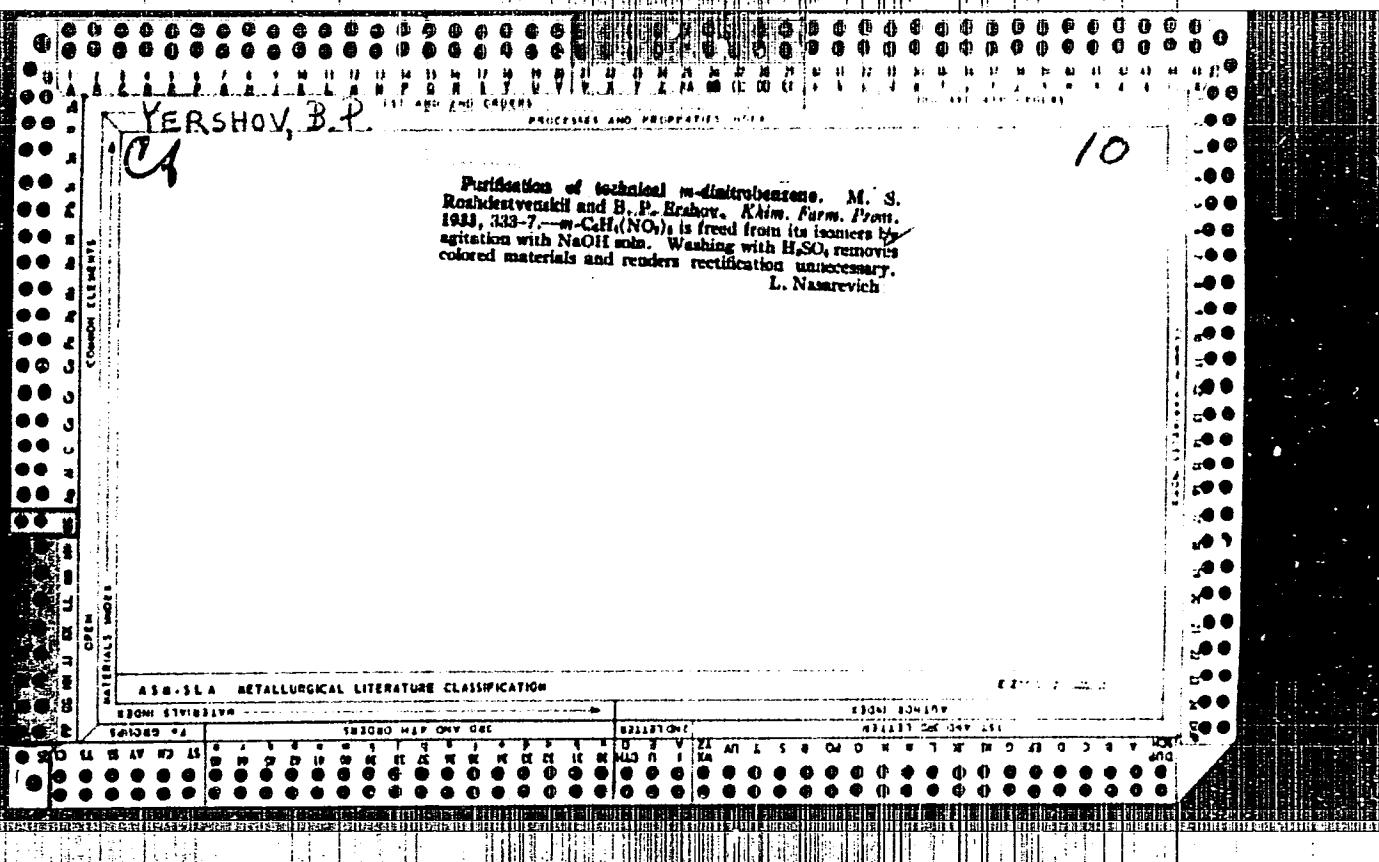
Designing settlements around railroad stations according to  
city planning principles. Transp. stroi. 14 no. 5:50-51 My '64.  
(MIRA 18:11)

1. Rukovoditel' gruppy Leningradskogo gosudarstvennogo proyektno-  
izyskatel'skogo instituta Gosudarstvennogo proizvodstvennogo  
komiteta po transportnomu stroitel'stvu SSSR.

YERSHOV, B.M., inzh.

Looking through old magazines. Transp. stroi. 14 no.7-59 J1 '64.  
(MIRA 18:1)

Planning buildings serving cultural and public needs. Ibld. 60



YERSHOV, B.P.

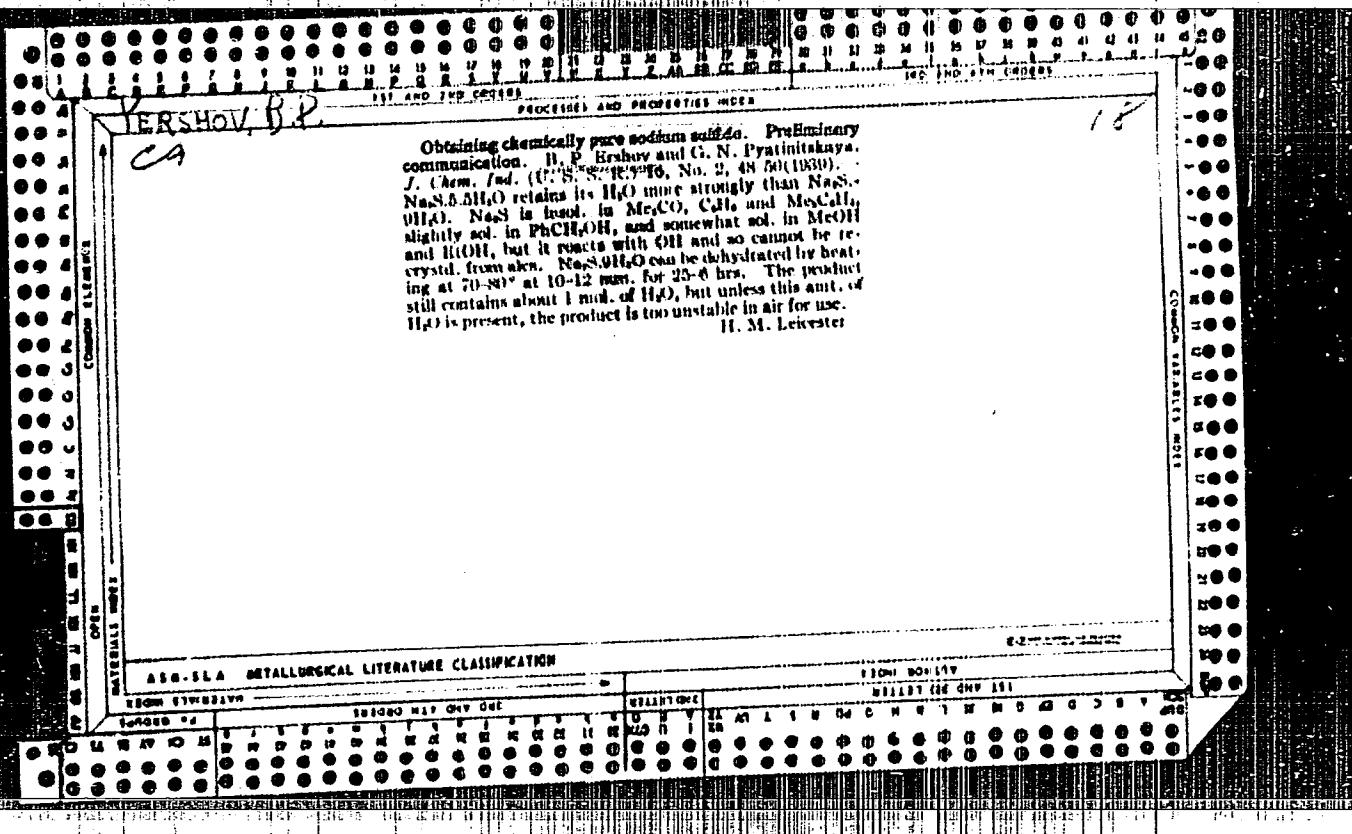
#### **PICKETS AND PROTESTS AGAINST**

**Preparation of anhydride from an aqueous solution of**  
**acetic acid.** B. P. Ershov and V. L. Fridropin. *Lensk-*  
*kin. Prog.*, 5, No. 9, 12-14 (1926).—Eighteen various  
catalysts were used as catalysts for prep.  $\text{Me}_2\text{CO}$  from  
an aqu. soln. of  $\text{AcOH}$  at temps. below  $100^\circ$ . The best  
catalysts were  $\text{Th}(\text{OAc})_4$  and  $\text{Ti}(\text{OAc})_4$ , using clay tile as a  
carrier, yielding 71 and 68% of  $\text{Me}_2\text{CO}$ . The  $\text{Th}$  catalyst  
was prep'd. by soaking pieces (diam. 1-2 mm.) of clay  
tile in 15%  $\text{Th}(\text{NO}_3)_4$  for 2 days, then treating them with  
a small amt. of 14%  $\text{NH}_4\text{OH}$ , drying at  $100^\circ$ , and, finally,  
treating with 10%  $\text{AcOH}$  and drying at  $100^\circ$ . The max.  
yield (85-88%) was obtained at  $210-215^\circ$  in the presence  
of 120-130 g. of the above catalyst (contg. about 15%  
 $\text{Th}(\text{OAc})_4$ ), by passing a 20%  $\text{AcOH}$  soln. with a velocity of  
200 cc. per hr. The following reaction for the  $\text{Me}_2\text{CO}$   
formation is proposed:  $\text{Th}(\text{OAc})_4 = 2\text{Me}_2\text{CO} + 2\text{CO}_2 +$   
 $\text{ThO}_3$  and  $\text{ThO}_3 + 4\text{AcOH} = \text{Th}(\text{OAc})_4 + 2\text{H}_2\text{O}$ . How-  
ever, using the  $\text{ThO}_3$  catalyst the yield was 15-20%. The  
difference in the yields is tentatively explained by an increase  
of the  $\text{ThO}_3$  activity at the moment of its formation.  
Passing 7000-8000 cc. of  $\text{AcOH}$  soln. per 6 hrs. through  
a furnace at  $350-375^\circ$  (contg. 5 tubes, diam. 1.5 cm.,  
with the catalyst) yielded 90.2% of anhyd.  $\text{Me}_2\text{CO}$ .

A. A. P.

**APPROVED FOR RELEASE: 03/15/2001**

CIA-RDP86-00513R001962910003-0"



YERSHOV, B. [P.]

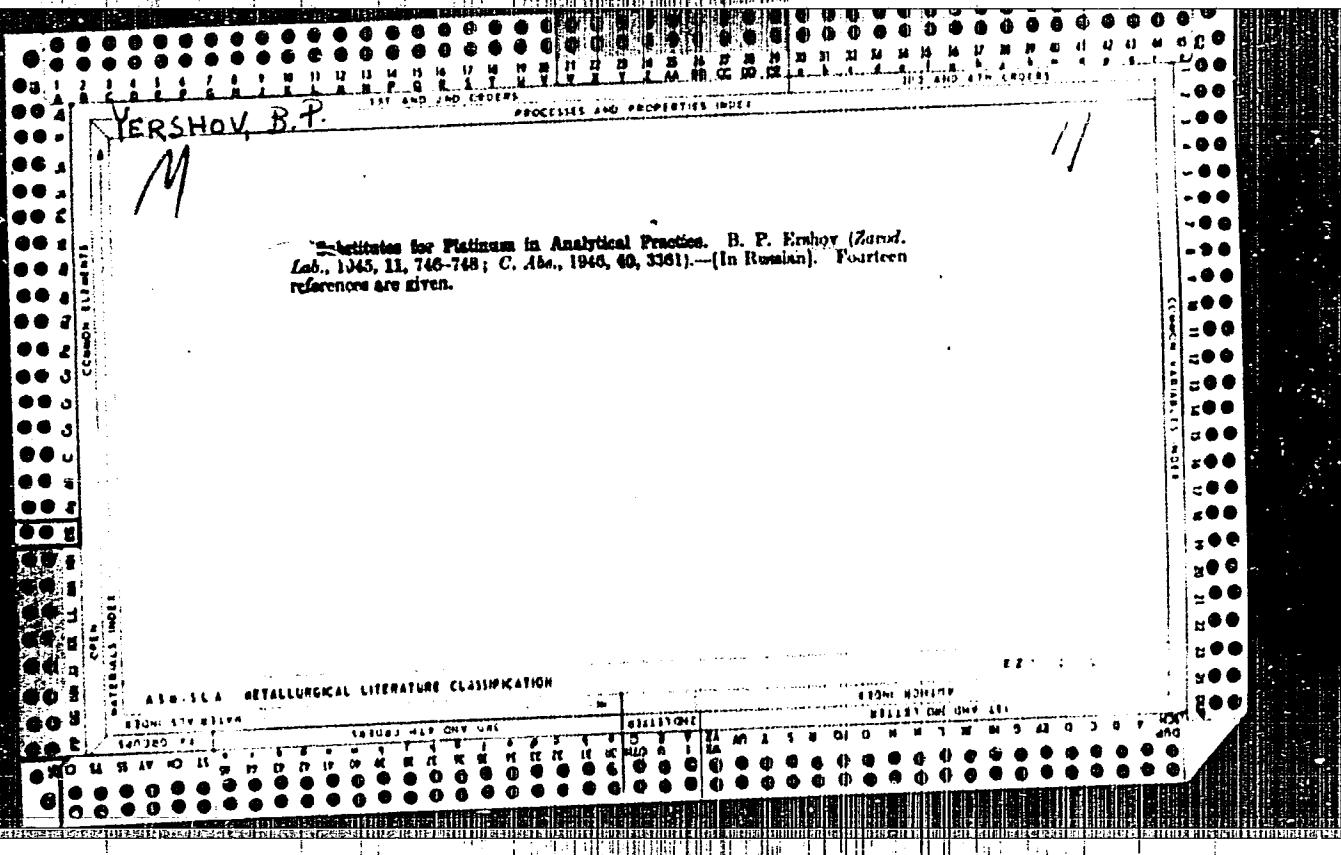
Electrolytic oxidation of aliphatic alcohols. B. Yershov and G. Pyatnitskaya. *Nauka i Tekhnika* 1940, No. 7, 20-21. In the prep. of propionic, butyric, isovaleric and isobutyric acids, the alcohols were oxidized in glass diaaphragm cells. The cathodes were Pb; the anodes, Pb coated with PbO<sub>2</sub>. With an electrolyte of 5.7% H<sub>2</sub>SO<sub>4</sub>, c. d. 0.037 amp./sq. cm., temp. 15-20°, and alc. concn. 27%, the yield of propionic acid was 46%; energy consumption, 40 kw. hrs./kg. of acid. Butyric acid was obtained in yields of 61-37% at 0.04 amp./sq. cm. and with MnSO<sub>4</sub> as catalyst; energy consumption, 30 kw. hrs./kg. acid. Isovaleric acid was prep'd. using 3.10% H<sub>2</sub>SO<sub>4</sub> plus MnSO<sub>4</sub>. The mixt. was stirred; temp. was not over 20°; alc./H<sub>2</sub>SO<sub>4</sub> ratio 1.6; c. d., 0.05-0.08 amp./sq. cm., yield, 60%; energy consumption, 25 kw. hrs./kg. and Isobutyric acid was prep'd. under the same conditions as those for isovaleric acid. Yield, 40-45%; energy consumption, 30 kw. hrs./kg.

B. Z. Kamch

YERSHOV, B. P.

Electrolytic reduction of acetylpropyl alcohol. B. P. Yershov and L. A. Zepalova-Mikhailova. *J. Applied Chem. (U. S. S. R.)* 16, 383-7 (1943).—Electrolytic reduction of acetylpropyl alc. in  $H_2SO_4$  soln. with Cd or Cd-treated cathode is capable of yielding over 80% of pure  $AmOH$ , under conditions of 0.1 amp./sq. cm., 38-42° and 10% acid concn. The process appears to be superior to Clemmensen reduction. G. M. Kosolapoff

AIA-SEA METALLURGICAL LITERATURE CLASSIFICATION



YERSHOV B.P.

24

### **PROCESSES AND PROPERTIES IN 2D**

卷之三

10

Semicontinuous method of preparation of diacetone alcohol (2-methyl-2-hydroxy-4-pentanone). B. P. Etkinshy and L. I. Prilorgata. *J. Applied Chem. (U.S.S.R.)*, 10, 311 (1957) (English summary).—By using an apparatus analogous to a large Soxhlet extractor, a semicontinuous method for diacetone alc. was developed. MeCO is refluxed over a charge of Ba(OH)<sub>2</sub>, with the unreacted material being gradually collected and recycled over the catalyst. The yields averaged 76–80%. The semicontinuous operation results because of the necessity for removal of the main charge periodically for distn. of the product. It was shown that the bulk of the reaction takes place in the 1st 3 hrs.

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三

## AIR-FILE METALLURGICAL LITERATURE CLASSIFICATION

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APPROVED FOR RELEASE: 03/15/2001

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CIA-RDP86-00513R001962910003-0"

YERSHOV, B.P.; POKROVSKAYA, V.L.

Use of high frequency titration for the analysis of raw  
materials and intermediates in the plastics industry. Plast.  
massy no.3:66-68 '60. (MIRA 13:6)  
(Plastics--Analysis) (Titration)

YERSHOV, B.P., MOSINA, A.S.

Determination of methylol groups in phenolic resins. Zhar.anal.  
khim. 15 no.2:243-244 Mr-Ap '60. (MIRA 13:7)

1. Nauchno-issledovatel'skiy i proyektnyy institut plasticheskikh  
mass, Moskva.

(Phenol condensation products)

S/191/60/000/C03/012/013  
B016/B054

AUTHORS: Yershov, B. P., Pokrovskaya, V. L.

TITLE: Use of High-frequency Titration to Analyze Raw Materials  
and Intermediate Products in the Plastics Industry

PERIODICAL: Plasticheskiye massy, 1960, No. 3, pp. 66-68

TEXT: The authors report on their more accurate and quicker high-frequency titration method of 1) xylenols alkylated with isobutylene at 70°C and 2) free formaldehyde in resins. 1) Xylenol-1,3,5, which is most important for the quality of xylene plastics and glues, can only be determined up to 80% by the usual methods, since 20% oxidizes during the analysis. Xylenol-1,3,5 is, however, not alkylated by isobutylene at 70°C, and can be determined without any loss (Ref.3). The authors plotted a diagram representing the microammeter data as a function of the HCl admixture. The content of xylenol-1,3,5 may be determined from the formula  $X = \frac{a \cdot K \cdot 0.061 \cdot 250}{b \cdot 10} \cdot 100$ , where a is the HCl amount calculated from the area between the first and second breaks of the curve in the Card 1/3

Use of High-frequency Titration to Analyze S/191/60/000/003/012/013  
Raw Materials and Intermediate Products in B016/B054  
the Plastics Industry

diagram (in ml); K is the correction coefficient for 0.5 N HCl; b is the weighed portion of initial industrial xylene; and 0.061 is the xylene amount corresponding to 1 ml of 0.5 N HCl (in g). 2) In developing this method, the authors based on their method of determining formaldehyde in dark-colored formalin solutions, which, in turn, is based on high-frequency titration of HCl due to the interaction of hydrochloric hydroxylamine with formaldehyde. For this purpose they used a device developed by V. A. Zarinskiy and D. I. Koshkin (Ref.5). The weighed portion of resin in alcoholic solution is mixed with a solution of neutral hydrochloric hydroxylamine, and titrated with NaOH. Similar diagrams as in case 1) are plotted, and the CH<sub>2</sub>O content is determined (in %) from the

formula  $X = \frac{a \cdot K \cdot 0.15 \cdot 100}{b \cdot v}$ , where a is the amount of 0.5 N alkali solution used for titration of the resulting HCl (in ml) (determined from the diagram); K is the correction coefficient of HCl for exactly 0.5 N; b is the weighed resin portion in g; and v is the solution used for

Card 2/3

Use of High-frequency Titration to Analyze  
Raw Materials and Intermediate Products in  
the Plastics Industry

S/191/60/000/003/012/013  
B016/B054

titration. The Nizhne-Tagil'skiy zavod (Nizhne-Tagil'sk Works), the  
Donbasskiy zavod (Donbass Works), and the zavod "Karbopolit" ("Karbopolit"  
Works) are mentioned. There are 5 figures, 2 tables, and 5 references:  
2 Soviet, 2 US, and 1 German.

Card 3/3

YERSEOV, B.P.; BORISOV, F.B.

Colorimetric determination of phenols in water by means of  
4-aminoantipyrine. Plast.massy no.6:66-68 '60. (MIRA 13:11)  
(Phenols) (Antipyrine)

YERSHOV, B.P.; POKROVSKAYA, V.L.; DVUGLOV, S.P.; Prinimali uchastiye:  
BOGOMOLOVA, T.A.; LOBANOVA, R.S.

High-frequency titration. Determination of 1,2,4- and 1,2,5-xylenol  
isomers. Plast.massy no.10:58-60 '61. (Molar 15:1)  
(Xylenol)

YERSHOV, B.P.; BORISOV, F.B.

High-frequency titration. Determination of alpha polyoxymethylene.  
Plast.massy no.11:46 '61. (MIRA 14:10)  
(Titration) (Polyoxymethylene)

YERSHOV, B.P.; POKROVSKAYA, V.L.

High frequency titration. Determination of cresol isomers. Plast.  
massy no.7:65-68 '61. (MIRA 14:7)  
(Cresol)

YERSHOV, B.P.; SMIRNOVA, A.G.

Use of resorcinol as an indicator during the complexometric determination  
of cadmium. Plast.massy no.4:61-62 '63. (MIRA 16:4)  
(Gadmidum—Analysis) (Resorcinol)

SHCHERBA, G.N.; YERSHOV, B.V.; IVANOV, A.I.; KUDRYASHOV, A.V.;  
SPINCHILLO, N.P.

Possible Mesozoic age of the Khorgos intrusive complex in the  
Dzungarian Ala-Tau. Trudy Inst.geol.nauk AN Kazakh.SSR 6:226-236  
'62.  
(Dzungarian Ala-Tau—Geological time)

YERSHOV, Boris Vasil'yevich; ZALETAVEV, Mikhail Vasil'yevich; FEST,  
G.A., red.; GRINEERG, P.I., red. izd-va; GALAKTIONOVA,  
Ye.N., tekhn. red.

[Maintenance of the ZIL-164A and ZIL-164AR motortrucks]  
Tekhnicheskoe obsluzhivanie avtomobilei ZIL-164A i ZIL-164AR.  
Pod red. G.A.Festa. Moskva, Avtotsentrdat, 1963. 155 p.  
(MIRA 16:4)

1. Zamestitel' glavnogo konstruktora Moskovskogo avtomobil'nogo  
zavoda im. I.A.Likhacheva(for Fest).  
(Motortrucks--Maintenance and repair)

YERSHOV, B.V.; ZALETAYEV, M.V.; ZARUBIN, A.G., nauchny. red.;  
KURAYEV, A.V., nauchny. red.

[ZIL-130 motortrucks; basic model and its modifications.  
Album of automobile designs] Gruzovye avtomobili ZIL-130;  
osnovnaya model' i ee modifikatsiiia. Al'bom konstruktsii  
avtomobilei. Moskva, Kolcs, 1965. 50 p. (MIRA 1816)

IERSHOV, B. Ya.

TREYUJLOV, V.N. i IERSHOV, B. Ya.

27187

Ratsional'noye Ispol'zovaniye Korotkogo Volokna. (Iz Opyta Fabriki "Serp i Molot")  
Tekstil. Prom-st', 1949, No. 2. S. 32-33

SO: LETOPIS NO 34

FRIIDMAN, B.N.; LIFSHITS, A.S.; YERSHOV, B.Ya.

Centrifugal spinning machine for the dry spinning of bast fibers.  
Tekst.prom. 14 no.2:10-13 F '54. (MIRA 7:5)

1. Nauchnyy sotrudnik TsvNIILV (for Fridman and Lifshits).
2. Glavnnyy inzhener fabriki "Serp i Molot" (for Yershov).  
(Spinning machinery)

YERSHOV, B.Ya.; PTUKHA, P.Ye.

Processing of jute in the sack industry. Tekst.prom.16 no.10:53-  
54 O '56. (MLRA 10:1)

1. Glavnnyy inzhener fabriki "Serp i molot" (for Yershov). 2. Nachal'-  
nik Planovo-preizvodstvennogo otdela fabriki "Serp i molot" (for  
Ptukha). (Jute)

TERSHOV, D., starshiy leytenant.

New device for teaching the theory of shooting. Voen.vest, no.14:  
40-43 '51. (MIA 6:12)

VYAZEMSKIY, O.V., kandidat tekhnicheskikh nauk; YERSHOV, D.P., inzhener.

Some special features in damming the Volga River at the city of  
Uglich. Odpr. stroi. 25 no.7:21-24 Ag '56. (MLRA 9:10)

(Volga River--Dams)

YERSHOV, D.P.

Shortcomings in standardizing marine exploratory drilling.  
Azerb.neft.khoz. 36 no.3:47-48 Mr '57. (MLRA 10:5)  
(Oil well drilling, Submarine)

YERSHOV, D.P.

Plastics in the manufacture of electric locomotives. Elektrotepl.  
tiaga 7 no.1:7-9 Ja '63. (MIRA 16:2)

1. Nachal'nik konstruktorskogo byuro plastmasu Novocherkasskogo  
elektrovozostroitel'nogo zavoda.  
(Plastics) (Electric locomotives—Equipment and supplies)

L 01065-66 EHT(m) DIAAP DM

ACCESSION NR: AF5014543

UR/0089/69/010/005/0519/0520  
539.12 39.121.64

AUTHOR: Yershov, E. B.; Karan, A. A.; Shamov, V. P.

14B

TITLE: Concerning the energy distribution of alpha particles emitted from a thick source

SOURCE: Atomnaya energiya, v. 18, no. 5, 1965, 519-520

TOPIC TAGS: Alpha emitter, thick source, energy distribution, moderating ability, range energy ratio

ABSTRACT: In view of the difficulty of preparing thin screens to measure the moderating ability of a substance and the range/energy ratio of alpha particles in the investigated substance, the authors consider the possibility of determining the range-energy relation for a thick flat emitter on the basis of an analysis of the form of its alpha-particle spectrum. The spectrum was measured with an alpha chamber and a 100-channel pulse-height analyzer. The pressed working compound (area  $\sim 3 \text{ cm}^2$ , thickness  $\sim 2 \text{ mm}$ ) was placed in a holder and contained uniformly distributed  $\text{P}^{239}$  atoms in a mass of talcum powder. The empirical form of the spectrum was obtained by breaking up the measured spectrum into four energy ranges, with a separate empirical formula obtained for each. By using the fact that talcum has

Card 1/2

L 01065-66

ACCESSION NR: AP5014543

moderating properties close to those of aluminum, it is found that the range-energy curve obtained from the empirical relations of the present work is in good agreement with calculations by others for aluminum. It is thus concluded that the proposed method makes it possible to find, with sufficient degree of accuracy, the moderating characteristics of any complicated substance which serves as a bulky base for a thick alpha source. Orig. art. has: 1 figure and 1 formula.

ASSOCIATION: none

SUBMITTED: 18 Mar 64

NR RZF SOV: 002

ENCL: 00

SUB CODE: NF

OTHER: 002

Card 2/2 DP

AFANAS'YEV, M.K.; YERSHOV, E.B.

Simple method for checking the proper mounting of the electro-magnet in a mass spectrometer. Zav. lab. 31 no.1:86 '65.  
(MIRA 18:3)

1. Leningradskiy nauchno-issledovatel'skiy institut radiatsionnoy gigiyeny.

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TITLE: Experimental determination of absorbed dose from alpha-emitters  
in contact media

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TOPIC TAGS: radiation dosimetry, alpha particle, medical-nuclear-applications, applied mathematics, mathematical prediction, mechanistic model

ABSTRACT: Present calculation of absorbed radiation doses and their distribution in tissues upon internal irradiation by alpha particles does not sufficiently consider the layer between the active and the passive medium, that is, the secretion layer in intestinal irradiation. This work involves study of factors influencing the dose and experimental determination of the absorbed dose according to the depth of the irradiated tissue, either without filter between the contact media or for any filter thickness, by means of an alpha spectrometer and calculation. The model for the active medium was a thick layer of pressed

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talc with evenly distributed  $Pu^{239}$ , and that for the passive layer was koloxylon lamellae simulating cellular layers of various thickness. Even distribution of radioactive isotope and irradiation throughout the media was assumed. Based on the spectra obtained and insertion of values into the formula

$$I = \frac{\sum E_i \cdot N_i}{\sum N_i} \quad (6)$$

where  $E_i$  is the energy of alpha particles corresponding to the i-channel;  $N_i$  the number of alpha particles with  $E_i$  energy, and further calculation in consideration of  $\Delta d$  layer, the formula

$$D_{\Delta d} = \frac{E_{\Delta d} \cdot I_0 \cdot 10^{-6}}{\Delta d \cdot t \cdot 100} \text{ (rad/min).} \quad (6)$$

was arrived at for the dose absorbed in layer  $\Delta d$ . It is concluded that this method of simulation permits determination of the distribution of the quantity of dose absorbed according to the depth of the irradiated medium (mucosal cover of the gastrointestinal tract) from the known thickness of the filter layer (secretion layer in the tract). The mean energy of alpha particles leaving the thick emitter is equal to 0.56 of

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the maximal value. Energy liberation beyond the boundary of the source of a thickness equal to the path of alpha particles is 14% of the maximal energy liberation within this layer. In the absence of an absorbing filter the amount of absorbed dose on each cellular layer compared to the mean dose over the whole path is equal to:

$$D_I = 2,64 \cdot D_{\text{tot}}; D_{II} = 1,20 \cdot D_{\text{tot}}; D_{III} = 0,00 D_{\text{tot}}$$

$$D_{IV} = 0,1 \cdot D_{\text{tot}}$$

The indices I, II, III and IV designate the corresponding cellular layers. Orig. art. has: 5 formulas and 4 figures.

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H.W

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(COMPLEMENT FIXATION TESTS) (PRECIPITIN TESTS)  
(GEL DIFFUSION TESTS)